CLAIMS

1. A method for mapping higher brain function to map a higher brain function while a body of a subject is in a resting state or in a predetermined active state, characterized by comprising

an fMRI mapping step to map a brain function of the subject by functional magnetic resonance imaging,

a head portion structural image acquisition step to acquire a head portion structural image of the subject by the magnetic resonance imaging in a state that a headgear having a predetermined marker is mounted on the head portion of the subject,

a three-dimensional image combining step to create a three-dimensionally combined image showing the brain function and the head portion structure of the subject simultaneously by three-dimensionally combining the brain functional image obtained by the fMRI mapping step and the head portion structural image,

an optical probe mounting step to specify a position on the headgear where an optical probe that is used for near-infrared spectroscopy is mounted based on the three-dimensionally combined image and to mount the optical probe at the specified position, and

an NIRS measuring step to map the brain function of the subject by the near-infrared spectroscopy in a state that the headgear loaded with the optical probe is mounted on the head portion of the subject.

2. The method for mapping higher brain function described in claim 1, and characterized by that during the optical probe mounting step a marker corresponding to an activated portion of the brain determined based on the brain functional image included in the three-dimensionally combined image is specified from the markers on the headgear determined based on the head portion structural image included in the three-dimensionally combined image and an optical probe for irradiation of near-infrared light and an optical probe for detection of the near-infrared light diffused from the brain are mounted in pairs near the specified marker on the headgear.

3. The method for mapping higher brain function described in claim 2, and characterized by that the optical probe for irradiation and the optical probe for detection are arranged apart by a predetermined distance across a corresponding marker.

4. The method for mapping higher brain function described in claim 3, and characterized by that a distance between the optical probe for irradiation and the optical probe for detection or a direction of arranging the optical probe for irradiation and the optical probe for detection is determined based on a shape of the activated portion of the brain, a physical condition of the headgear, a positional relationship with other adjacent optical probe or a theoretical analysis result of brain optical propagation.

5. The method for mapping higher brain function described in claim 1, 2, 3 or 4, and characterized by further comprising a headgear manufacturing step to manufacture the headgear and during the headgear manufacturing step the headgear for the subject's exclusive use tailored to each subject is manufactured.

6. The method for mapping higher brain function described in claim 5, and characterized by that during the headgear manufacturing step a plurality of the markers are evenly embedded at predetermined intervals into the headgear.

7. The method for mapping higher brain function described in claim 5 or 6, and characterized by that during the headgear manufacturing step the head portion of the subject is covered with a flexible film such as a kitchen wrap film, then a molding material is applied on the film in a flexible condition so as to make the headgear molded into a form of the head portion of the subject and the markers are embedded into the molding material before the molding material is cured.

8. A headgear for mapping higher brain function that is used in the method for mapping higher brain function described in claim 1 through claim 7,
characterized by comprising a gear body formed into a shape of the head portion of the subject with a molding material

of either a kneaded dental rubber elastic impression material of binary kneaded-type or a heat distortion resin material attached in a flexible condition to the head portion of the subject and then cured and a plurality of makers embedded at predetermined intervals into the molding material prior to curing.

9. The headgear for mapping higher brain function described in claim 8, and characterized by that a positioning portion that corresponds to either one or both of a nose and an ear of the subject is formed with the molding material prior to curing.

10. The headgear for mapping higher brain function described in claim 8 or 9, and characterized by that the maker is an adipose sphere.

11. The headgear for mapping higher brain function described in claim 8, 9 or 10, wherein the gear body is formed by applying the molding material on a flexible film such as a kitchen wrap film that is attached to the head portion of the subject in advance.